METRA*Hit*® Accessories
for Power and Energy Measurement

METRA*Hit*®EMA1
Energy Measuring Adapter for Ferraris Meters

* Energy measurement in 3-phase systems
  with only a single METRA*Hit*®29S multimeter

* Hazard-free connection without intruding into the system

* Recording of the load profile to the integrated
  memory at the METRA*Hit*®29S

* Display and analysis of measured energy values with
  METRAwin®10/METRA*Hit*® Windows software (optional)

PMA16
Power Measuring Adapter

* Contact protected, intermediate adapter plug
  for hazard-free measurement of power consumption

* For use with 230 V load components

* The protective conductor at the load component remains
  functional

QUALITY MANAGEMENT SYSTEM

DQS Certified per
DIN EN ISO 9001 Reg. no.1262

Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 60529 VDE 0470 Part 1	Test instruments and test procedures – Protection provided by enclosures (IP code)
EN 50081-1	Electromagnetic Compatibility (EMC) Generic standard for interference emission
EN 50082-1	Electromagnetic Compatibility (EMC) Generic standard for interference immunity

Applications, METRA*Hit*®EMA1

The METRA*Hit*®EMA1 is used as an adapter in combination with
the METRA*Hit*®29S precision digital multimeter for energy
measurement at Ferraris meters without intruding into the system.
It records the energy profile (quarter-hour mean values), and
serves as a valuable tool for energy consultants for the recogni-
tion of energy peaks and opportunities for energy savings in large
industrial operations, systems etc.

The METRA*Hit*®EMA1 consists of a control unit and a sensor
which is attached to the meter. The conversion electronics are
powered with the included mains power pack. Visible meter
pulses are converted into an electronic square-wave signal which
is acquired at the voltage input of the METRA*Hit*®29S in the
"diode test" selector switch position, and is evaluated based
upon the pre-selected energy factor.

Characteristic Values, METRA*Hit*®EMA1 Control Unit

Ambient Conditions

Reference Temp.	23° C ±2 K
Storage Temperature	−25° C ... +70° C
Operating Temp.	0° C ... +55° C
Relative Humidity	max. 75%, no condensation allowed
Elevation	to 2000 m
Deployment	indoors

Electromagnetic Compatibility

Interference Emission	EN 50081-1
Interference Immunity	EN 50082-1

Mechanical Design

Protection	IP 40
Dimensions	control unit, WxHxD: 97 mm x 135 mm x 39 mm
Weight	control unit: 110 g

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Standard Equipment, METRA*Hit*®EMA1

1 Energy measuring adapter for Ferraris meters
1 Power pack
1 Operating instructions for the control unit
1 Operating instructions for the sensor

Figure 1   METRA*Hit*®29S with attached EMA1

Applications, PMA16 Power Measuring Adapter

The PMA16 power measuring adapter is an intermediate adapter plug for safe and simple measurement of power consumption at the mains plug of single-phase load components. The protective conductor at the load component remains functional during measurement.

Measurement Setup

A power meter is required, for example the METRA*Hit*®29S, which is equipped with sockets into which the contact protected connector plugs at the measurement cables of the PMA16 can be inserted.
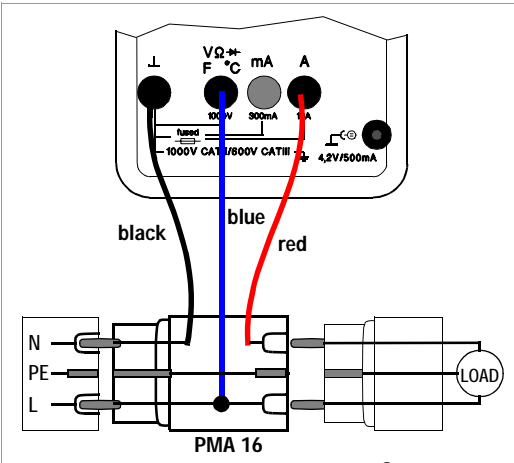
Figure 2   Connecting the METRA*Hit*®29S
to the PMA16 and the load component

Characteristic Values, PMA16

The power measuring adapter is a measuring accessory in accordance with IEC 61010–1 / DIN EN 61010–1 / VDE 0411–1. It may only be used in systems with nominal voltages of up to 250 V which are protected with fuses or breakers with a maximum rated value of 16 A!

Standard Equipment, PMA16

1 Power measuring adapter
1 Operating instructions

Order Information

Description	Type	Article Number
Energy measuring adapter for Ferraris meters, power pack and operating instructions	EMA1	Z112A
Power measuring adapter and operating instructions	PMA16	Z228A
Precision digital multimeter and power meter including KS17-2 cable set, battery, GH18 and DKD calibration certificate	METRAHIT29S D) 1)	M229A
Carrying pouch for METRA*Hit*®	F829	GTZ 3301 000 R0003
Ever-ready case for METRA*Hit*®	F836	GTZ 3302 000 R0001
Hard case for METRA*Hit*® and accessories	HC20	Z113A

D) Data sheet available
1) Can be used in combination with EMA1 as of firmware version 14.4